

2003 EYH Committee Members

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Special thanks to these community sponsors

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New Mexico Network for Women in Science and Engineering
and Los Alamos National Laboratory present:

Expanding Your Horizons

Technical Career Workshops for Young Women



Tuesday, March 11, 2003
Los Alamos National Laboratory
Los Alamos, New Mexico

Student Schedule

8:00–8:30	Registration, Welcome, and Morning Snack
8:30–9:45	Team Activity <i>Rubbish! or? Wonderful Things?</i> <i>The Archaeology and Anthropology of Garbage</i>
10:00–11:15	Student Workshop One
11:15–12:45	Lunch
1:00–2:15	Student Workshop Two
2:15–2:30	Afternoon Snack
2:30–3:25	Keynote Speaker Julie Canepa, Health, Safety, and Radiation Protection Division Office, LANL <i>From Chemistry to Cleanup</i>
3:30	Departure

EYH Teacher Conference

8:00–8:30	Deliver Students to Immaculate Heart of Mary Catholic Church Parish Hall, 3600 Canyon Road, Los Alamos
8:30–8:45	Teachers take LA Public School Bus to Canyon Complex, Room 167, for EYH '03 Teacher Conference
8:45–9:00	"Welcome and Introduction of Keynote Speaker" Sandra Landry, Critical Skills Team Leader, Student and Education Program Office (STB-EPO)
9:00–9:45	Therese Trujillo Eng., BWX Technology Services, "Queremos Saber"
9:45–9:55	Break
10:00–10:45	Dr. Jonathan Dowell, NIS-9, "Splash with Flash" Holding students' attention with multimedia.
10:50–11:30	Dr. Peter Adams, X-2, "Math Counts"
11:35–12:30	Lunch (Provided by the Education Program Office) Dr. David Kratzer, CCN-7, Adventures in Supercomputing Challenge, 11:40-12:00 Jan Frigo, NIS-3, Robotics Competition 12:10-12:30
12:30–12:45	Break
12:45–2:15	Dr. Diane Albert, MST-OPS, "Materials Science of Sports Equipment Learn about the kinds of materials used in different types of sports equipment, such as bicycles, skis, and golf balls. The performance of the equipment will be linked to the structure of the materials used in the design of the equipment.
2:15-2:30	Return to IHMC Parish Hall via LAPublic School Bus
2:30-3:25	Join Students for EYH '03 Keynote Speaker Dr. Julie Canepa, "From Chemistry to Clean-up"

Student Workshops

- 1. Acids and Bases in the World Around Us**
Roberta Mulford
Students will test the pH of different foods and soaps using indicators.
- 2. Adventures in Uncertainty**
Lisa Moore and Joanne Wendelberger
Participants will be introduced to the concept of variation and topics in probability and statistics through a variety of hands-on activities.
- 3. Cryptography: The Art of Secret Writing**
Sarah Lownes
A survey of methods used to protect information, from Roman times to the computer age. Practical hands-on exercises are part of the workshop.
- 4. Designing Patterns using Programming Logic and Mobile Robots**
Jan Frigo and Maya Gokhale
We will use the Mindstorm Robot system to illustrate the concept of sequential programming. The students will write their own programs to control a two motor mobile robot and send the programs via an IR link to a Robot that has three pens mounted to its base. The programs will execute the logic creating a unique pattern.
- 5. Dynamic Testing of Materials**
Ellen Cerreta and Tom Bell
The workshop will include a tour and explanation of the testing facilities for low and high rate deformation of engineering materials, including demonstrations of some of the equipment and the way different materials behave.
- 6. Forest Health**
Aimee Blanchard, Shannon Smith, Phoebe Suina, Liz English, and Tori George
Examine and discuss over-crowded vs. uncrowded stands of trees and forest health implications. Examine "cookies," cores, and hunt bugs.
- 7. How your brain works and remembers: Let's take a look!**
Jill Ryan
Participants will take "brain teaser" tests to demonstrate some of the ways the brain works and explore careers in psychology and neuroscience.
- 8. Let's Dig for Buried Artifacts**
Samantha Ruscavage-Barz and Debbie Bauman
We will discuss what archaeologists do and the training required to become a professional archaeologist. Students will have the opportunity to participate in a simulated archaeological dig, complete with buried artifacts.
- 9. Let's make Ooey, Goopy Polymers**
Debra Wroblewski and Mary Campbell
Demonstrate the properties of polymers through hands-on demonstration. We will cross-link polyvinyl alcohol with borax solution thereby changing the properties of the polymer. Another experiment is to demonstrate the change of rubbery properties by cooling a rubber band below the T_g.
- 10. The Many Exciting Career Opportunities for Women in Dentistry**
Haley Ritchey
I will talk about all the specialties in dentistry and have stations where the girls can do hands-on simulations of different procedures I perform each

Student Workshops (continued)

- day. Examples: Pouring up a plaster model, fabricating 'temporary' teeth, waxing up a gold crown.
- 11. Not Just Small Talk: Weather and Climate Science**
Laura Marsh and Tina Sommer
Global warming and climate change science will be explored through slide presentations and hands-on activities focusing on topics such as microclimates, air pressure, and cloud formation.
 - 12. Radiation and Radioactivity**
J. Margo Clark
The students will develop a better understanding of radiation and radioactive materials. Hands-on activities include using radiation detection instruments to detect small amounts of radioactivity in demonstration materials.
 - 13. Scanning Electron Microscopy: Bringing out the best or worst through magnification**
Alicia Ayala
This workshop will introduce the girls to the area of scanning electron microscopy and provide a brief description of the theory and mechanics of the scanning electron microscope. Applications of the microscope will be discussed. The girls will get hands on experience by actually operating the microscope to look at and characterize samples such as insects, salt crystals, powder makeup, and human hair.
 - 14. Spills, Ripples, and other fun properties of fluids**
Kathy Prestridge and Melissa Douglas
We will introduce the various properties of fluids, such as pressure, surface tension, and density. We use a hands-on, experimental style to determine how these properties affect the behavior of fluids. All of the techniques that we use can be taken home and repeated for friends and family.
 - 15. Tails of a Veterinarian**
Gretchen Yost
We will explore the world of a small animal veterinarian by looking at x-ray film. drawing up injections, calculating drug dosages, gowning and gloving for surgery, and stitching up some "wounded" stuffed animals.
 - 16. Troubleshooting Computer Hardware**
Vera Vigil
This workshop will expose students to computer technical terms, peripherals, software and tools. It will also provide students with hands-on experience in troubleshooting video and audio problems and connecting and configuring a printer to a computer.
 - 17. Workplace Wellness: A Look at Careers in Physical Therapy, Fitness and Nutrition**
Gail Fox, Marta Gentry Munger, and Cindy Lawton
Tour of Wellness Center, Nutrition/Dietetic Career Opportunities; Physical Therapy Job Requirements and Opportunities. The students will learn the various specializations within physical therapy, various setting which one can work, and establish a good understanding of the responsibilities of a Physical Therapist.